

ABSTRACT OF THE DISCLOSURE

A system for efficient derivation of finite impulse response (FIR) values. A single-instruction multiple data (SIMD) type of operation is used. In a preferred embodiment, the operation is achieved by an instruction called *PAVG*. The results of *PAVG* are a rounded-up average of two sets of packed values. Adjustments are made on the rounded-up average to obtain an exact desired result for various filter calculations. The invention also provides approaches to achieving approximate desired results that differ from the exact desired results yet remain within acceptable error ranges. The approximate approaches require less computation and can be advantageous in different applications, or embodiments, of the invention. Various techniques for minimizing processor resources (e.g., processing cycles, memory) are presented.